



# EFFECTIVENESS OF ACTIVITY-BASED LEARNING AMONG PRESCHOOL CHILDREN WITH HEARING IMPAIRMENT

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## ABSTRACT

Children with Hearing Impairment are a challenging group because of their inadequate language thus having an impact on their academic achievement. This inadequacy in language makes the task of reading and writing difficult. However, these children cannot be exempted from such training, as they need to work harder to perform on par with their typical peers in a mainstream environment. The study was conducted with the purpose of developing an activity-based learning material for language development for pre-school children with hearing impairment using a systematic intervention technique. The sampling technique employed was purposive in nature seeking children with hearing impairment studying in a special preschool set-up. A total seven children with hearing impairment within the age group of 3-4.5 years, selected for the study. The collected data, subjected to appropriate quantitative analysis. The results show that the activity worksheets and their related interventional practice worksheets were found to be helping the participants in improving the concepts as well as the related activities. The present study was an effort to conduct an experiment to study the efficacy of the developed activity worksheets for language and concept development among children with hearing impairment.

**KEYWORDS:** Children with Hearing Impairment, Mainstream, Environment, Activity Based Learning, Activity Worksheets

## INTRODUCTION

The agenda of Sustainable Development is providing quality preschool education is one of the goals covered under the 2030. The National Education Policy, 2020 has emphasized on the development foundational literacy and numeracy. Wherein it highlights the ability to read, write and perform basic operations with numbers, which is a necessary and an indispensable prerequisite for all future schooling and lifelong learning. The National Education Policy, 2020 further states that we are currently in a learning crisis wherein a large proportion of elementary school - estimated to be over 5 crores in number. They have not attained foundational literacy and numeracy, i.e., the ability to read and comprehend basic text and the ability to do addition and subtraction with Indian numerals.

The National Education Policy-2020, has also highlighted the need for including children with special needs in the regular set-up for which they have introduced short-term courses in specialization to teach children with disabilities with the existing framework to provide education out of barrier to children with disabilities as per the Rights of Persons With Disabilities Act 2016. To facilitate this new addition made in the National Education Policy 2020, assistive devices, appropriate technology-based tools and teaching-learning materials for language development will be made available for the children with special needs in the inclusive classroom. In addition, high-quality modules to teach Indian Sign Language and to teach other basic subjects using Indian Sign Language will be developed. The Preschool Curriculum developed by National Council of Educational Research and Training (2019) also states that the age group between 3-5 years is considered to be a crucial year as it is the age wherein the all-around capacities that emerge in this age group are the prerequisites for later success in school and life.

The curriculum further states that a well-thought creative play, for children with special needs with suitable adaptations. The appropriate activities for the developmental stages, will help children develop their working memory, attention and acquire self-control. These skills of executive functions and self-regulation provide children with the foundation which helps them become confident and efficient learners in their later years. They also learn to accommodate naturally with the different learning styles among themselves. For achieving the skills in the foundational years, it is essential that children should be developing their language naturally, and should be having intact normal cognitive development and sensory organs for acquiring and assimilating information from the natural environment. Normal children acquire language naturally, without much effort. This language is developed by natural language stimulation and exposure to the natural environmental language by listening to the language stimulation by the parents and people in the surrounding. The environment of home plays a crucial role in early language development and has long-term outcomes. The child's home language environment is a strong predictor of early language skills. The researcher further highlighted the importance of economically stable family, wherein children growing up in that environment will have an enriched language and learn vocabulary faster. Their

demonstration in processing speed increased and develop overall good language and cognitive skills. Good early language skills, shown to have better future academic outcomes (Yue Ma, et.al 2021).

However, few children do not develop their language naturally and need some extra support to develop and acquire the language. These are the children with communication disorders having a hearing impairment, autism and intellectual disability. Among them, children with hearing impairment are most vulnerable because they are not able to express their requirements, thoughts and emotions through verbal communication. Listening is the prerequisite for the acquisition of the language. Children with hearing impairment face difficulty in acquiring this primary skill, hence they have difficulty in all components of life. According to the World Health Organization, a person who is not able to hear as well as someone with normal hearing – hearing thresholds of 25 dB or better in both ears is said to have hearing loss that may be mild, moderate, severe or profound. It can affect both ears and leads to difficulty in hearing conversational speech or loud sounds. Due to their impairment, these children face many challenges in all components of their life. Studies have also reported the same. According to Lieu, J., E., C. et.al (2020), consequences of hearing loss in children include worse outcomes in speech, language, education, social functioning, cognitive abilities, and quality of living.

The inability in hearing from early age creates a major problem in developing speech and it can also have a negative impact on intellectual development as well. It is often said that deaf students' lack of vocabulary affects the development of cognitive skills. (Hardman et al.2005). The hearing impairment also negatively influences their academic achievement. The careful attention in proper time will bring positive results in reading and spelling skills of hearing impaired children. These students will be progress typical in their primary school. They fall behind three to four years in terms of reading disability, within the peer group. (Hardman et. al.2005).

This detrimental impact of lag in reading leads to perform less in across the curriculum in other subjects. The stem of the spelling and reading difficulty in perceiving accurate speech sound and awareness of phonics. The serious difficulty in learning encoding and decoding skills caused by their limited knowledge in phonemic awareness. The deaf children's expression in written, syntax and vocabulary are the major weakness, often reported to be problematic (Antia et. al.2005). Their difficulties in written expression often includes inconsistencies in using correct pronouns, representing the plurals, incorrect verbs, and tenses and inaccurate sentence structure. The elder deaf student's written work has many characteristics of the younger deaf children, which includes incorrect word order.

To solve this entire academic problem there is a need to address these issues by providing children with a conducive learning environment as well as an appropriate teaching method and aids. The usual traditional methods of teaching-learning involve few teaching-learning materials thereby subjecting the children

to rigorous reading/writing exercises at school and at home. Due to the limitations of the traditional approach, there is a raised need for play way and activity based teaching learning of language. This of language approach is important and beneficial to children with communication disorders for additional support as well as home training. The children need learning wherein they are actively involved in the teaching-learning process. The students participate actively in Activity Based Learning, rather than as passive listeners. They further state that, based on the real-life experience, if learners learn the activities, this help the learners to transform information into knowledge. They can apply this knowledge in different situations of life (Harfield et. al.2007).The efficacy of activity-based learning has been researched and reported. Many studies also support Activity based learning. Suydam and Higgins (1997) opine that child-centered pedagogy and the constructivist educational ideas were followed in the activity based learning.

Activity Based Learning serves as one model of child-centered, child-friendly education, which is mandated according to the Right to Education (RTE 2009 ) Act of India . The Act also states that children should be taught child-friendly and child centered manner, based on activities, discovery and exploration in a child-friendly learning environment. This make the child free from fear, trauma and anxiety thus promotes the child express their views freely.

Based on the above findings as well as after exploring the availability of indigenous worksheets to meet the learning requirement of hearing impaired children. To enable the children to cope the process of teaching and learning joyful, an attempt was made to develop an activity book for the language development of hearing impairment, studying in special preschools. In the activity-based learning ,the worksheets were prepared to foster different concept-based learning along with associated reading and writing to develop the language skills of children with hearing impairment. The activity-based learning worksheets are a child-friendly educational aid fostering self-learning and the worksheets are in the regional language Kannada.

## METHOD

The present study was an effort to conduct an experiment to study the efficacy of the developed activity worksheets for language and concept development among children with hearing impairment. The sampling technique employed was purposive in nature seeking children with hearing impairment studying in a special preschool set-up.

## Participants

A total of seven children with hearing impairment in the age group of 3.0-4.5 years were selected for the study. Among the seven children, two children belongs to the age group of 3.0-3.4 years, one child in the age range of 3.5 to 4.0 and the remaining four children were in the age range of 4 to 5 years. Among the selected children, two children had moderate hearing loss, three children were with severe hearing loss and the remaining two were with profound hearing loss. The selected participants were enrolled in a preparatory training, which provides basic training in concept development, pre-reading and pre-writing activities. They all were wearing hearing aids but their listening age 2.10-4.3months. Kannada was their medium of instruction, which being their receptive and expressive language. The other details pertaining to the participants are included in table no. 1 given below. The other criteria for including the children in the study are as follows:

## Inclusion Criteria:

1. The child should have developed eye contact as a part of pre-reading and pre-writing skills.
2. The child should have developed eye hand coordination.
3. The child should be able to identify and hold the writing instrument (pencil, chalk etc.)
4. The child should be able to sit in one position and attend an activity.

## Exclusion Criteria:

- 1.No additional disability.

Attribute: Participants Age			
Categories:	3.0 to 3.4 years	3.5 to 4.0 years	4.0 to 4.5 years
Number:	2	1	4
Attribute: Gender			
Categories:	Boy	Girl	
Number:	6	1	
Attribute: Listening Age			
Categories:	02.05 to 03.4	3.5 to 4.5	
Number:	3	4	
Attribute: Range of Hearing Impairment			
Categories:	Moderate	Severe	Profound
Number:	2	3	2

**Table No.1: Participants Details**

**Tool:** As a part of the study, three types of tools were prepared for the pre-test, post-test and the interventional worksheets. The details pertaining development of pre-test, post-test and the interventional worksheets are discussed below.

**Selection of the Concepts:** The study aim to develop activity worksheets for language development for hearing impaired children belongs to the age group of 3-4 years. Children with hearing impairment tend to learn those concepts, which are from their immediate environment. The concepts and its related activities were selected from "Early Childhood Education Manual" (Published Preschool Document developed as a part of preschool curriculum). The researcher also explored and referred to Early Childhood Curriculum from NCERT Preschool Curriculum and Save the Children (an NGO) curriculum to finalize and validate the eight language-based concepts selected for the study. The manual is a standardized manual developed and validated by experts working in the field of special education and speech and hearing. Hence the following eight concepts namely 1. Body parts 2. Family members 3. Food we eat 4. Things we use 5. Vegetables 6. Fruits 7. Animals 8. My Home, were finalized. However, for the present study only three concepts namely Body Parts, Family Members and Food We Eat were selected as these were the primary concepts required to be taught to the children in the selected age range. Based on these concepts, the pretest, posttest and the interventional materials were prepared.

**The Pre-test and the Post-Test:** As the study aimed to learn the efficacy of the language worksheets, it was essential to determine the entry level of children. After finalization of the concepts, pre-test was prepared for administering it on the selected participants. The items included in the pre-test were as follows Identifying, Finding & Matching. Similarly, after completion of learning the concepts through interventional material, a similar post-test was administered to learn the efficacy of the worksheets. Both the pretest and the posttest developed in Kannada.

**Development of worksheets:** For developing language worksheets for the selected concepts, ideas were explored from various sources. For each concept, mainly three worksheets for test and two extra for practice was prepared based on the objectives. The activities included in the worksheets were as follows identifying, finding and matching. The practice worksheets were made attractive by using colorful and regional pictures.

The pretest, posttest and the practice worksheets validated by the special educators working in the special education field, for more than five years. Their suggestions were incorporated and the final pre-test, post-test and the worksheets were made.

## Data collection and analysis procedure

After finalization of the concepts and selection of the participants, the pre-test was prepared and validated. After explaining the purpose and process of the research consent taken from the caregivers/guardians of the children for the participation in the study, before the administration of the pre test. After administration of the pre-test, the baseline performance of the children was established. The interventional worksheets were given to each child for practice. The parents were instructed on the usage of the instructional worksheets to minimize the errors in the selected concept in Kannada language. Followed by which the post-test was administered. In person administered the pretest and posttest on the participants. To go through the items and record their response, enough time given to the participants. The data thus collected was subjected to appropriate descriptive and inferential analysis to check the effectiveness of Activity-Based Learning among Preschool Children with Hearing Impairment.

## DISCUSSION OF RESULTS

The study was carried out with the purpose of developing an activity based learning material for language development for pre-school children with hearing impairment using a systematic intervention technique. The data collected was subjected to appropriate quantitative analysis. The Wilcoxon Signed rank test was used to compare the pre-test and post-test results of the participants. This test was used, as the population data does not have a normal distribution. Wilcoxon Signed rank test was also used as the sample size was small. Table No. 1 depicts the results of the qualitative analysis as well as the Wilcoxon Signed Rank Test.

CONCEPT		PRE-TEST	POST-TEST
BODY PARTS	MEAN	16.71	24.14
	SD	3.25	2.27
	MEDIAN	17.00	25.00
	IQR	7	5
	MAX MARKS	28	28
FAMILY MEMBERS	MEAN	12.00	21.14
	SD	2.58	2.03
	MEDIAN	12.00	24.00
	IQR	7	5
	MAX MARKS	24	24
FOOD WE EAT	MEAN	8.28	22.86
	SD	4.38	2.27
	MEDIAN	9.00	24.00
	IQR	8	2
	MAX MARKS	24	24

**Table 1:** Mean, Standard Deviation, Median and the summary of Wilcoxon Signed Rank Test in Pre-test and Post-test for concepts like Body parts, Family Members & Food We Eat.

The above table depicts the results of the pre-test and post-test obtained by the participants for the concepts of Body parts, 'family members' as well as the 'food we eat'. The overall results show an improvement in the post-test as compared to the pre-test after learning through the activity worksheets. For the concept of

'Body Parts', the score obtained by the participants in the pre-test was 16.71 and in the post-test was 24.14. Whereas for the 'Family Members' and 'Food we Eat', the score obtained in the pre-test was 12.00 and 8.28 respectively whereas the score obtained in the post-test for both these concepts was 22.14 and 22.85 respectively.

Hence, the post-test scores indicate that the children learnt better and improved their scores after learning through the activity worksheets. The reason for the improvement in performance is due to the variety of activities used in the activity worksheet. Moreover, the participants were also given sufficient practice, which helped them to learn and understand the concept better. As per a report published in Reading Partners (2019), books with pictures brings, tremendous benefits to kids who are in the early stages of developing their reading skills, illustrations shown alongside text offer valuable tools to help kids build understanding, fluency, vocabulary and other foundational literacy. The data was further analyzed to see the improvement in performance among the tasks selected, hence the data was compared between pre-test and post-test of tasks like Identifying, Finding and Matching across the selected concepts. Table 2 below depicts the comparison between the tasks.

Sl.No	Concepts Selected	Tasks	Pre-test	Post-Test
1	Body Parts	Identifying	6.8	9.2
		Finding	5.1	7.4
		Matching	4.7	7.4
		<b>Overall</b>	<b>16.6</b>	<b>24.0</b>
2	Family Members	Identifying	6.4	8.4
		Finding	3.6	7.3
		Matching	2.0	5.4
		<b>Overall</b>	<b>12.0</b>	<b>22.2</b>
3	Food We Eat	Identifying	2.0	7.8
		Finding	3.3	7.7
		Matching	3.0	7.2
		<b>Overall</b>	<b>8.3</b>	<b>22.7</b>

Based on the above table, the results show that in the concept of 'Body Parts', for the task of 'Identifying', the score obtained in the pre-test was 6.8 and for the post-test, the participant's score was 9.2. Similarly, for the task of 'Finding' the score obtained in the pre-test is 5.1 and the post-test is 7.4. In 'Matching', the score obtained in the pre-test is 4.7 and the post-test is 7.4 respectively. Thus, the activity worksheet was found to be effective in improving the concept of "BODY PARTS".

Similarly, for the concept of 'FAMILY MEMBERS', the same task like 'Identifying' were included and the result showed improvement in the post-test which. For the task of 'Identifying', the score obtained in the pre-test was 6.4 and for the post-test, the participant's score was 8.4. Similarly, for the task of 'Finding', the score obtained in the pre-test is 3.6 and the post-test is 7.3. In 'Matching', the score obtained in the pre-test is 2.0 and the post-test is 5.4 respectively. This result shows that the activity worksheet was found to be effective in improving the concept of "Family Members".

Hence, in the concept of "Food", for the task of "Identifying", the score obtained in the pre-test was 2.0 and for the post-test, the participant's score was 7.8. Similarly, for the task of "Finding", the score obtained in the pre-test is 3.3 and the post-test is 7.7. In 'Matching', the score obtained in the pre-test is 3.0 and the post-test is 7.2 respectively. By this, the activity worksheet was found to be effective in improving the concept of 'Food We Eat'. Thus the activity worksheet and its related interventional practice worksheets were found to be helping the participants in improving the concepts as well as the related activities. However, if observed, the participants have comparatively done well in the concept of 'Body Parts' as compared to the 'Family Members' as well as 'Food we eat'. The report by Mishra (2022), states that children have some basic awareness about their surroundings, it is time to teach them about the names of body parts, they do have questions about their own body and learn attentively about it. Hence the better improvement in the concept of 'Body parts' as compared to other concepts.

## CONCLUSION

Thus, it could be concluded that the effectiveness of activity-based learning in promoting language development among preschool children with hearing impairment is an important area of study. The activity-based learning can provide a beneficial learning experience for this population, leading to improved language skills and socialization. The results obtained also signify the importance of systematic and interesting activity-based learning for overall concept development for children with hearing impairment. Thus, it could be concluded from the study of Ozone and Yasemin (2011) who in their study on activity-based intervention practices in special education stresses that teaching practices in natural settings such as activity-based intervention (ABI) are suggested as alternatives to be used in effective early childhood education.

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